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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Office of the Secretary Of Defense **Date:** February 2016

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 3: Advanced Technology Development (ATD)</i>	R-1 Program Element (Number/Name) PE 0603289D8Z I <i>Advanced Innovative Analysis and Concepts</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	0.000	48.760	50.030	57.020	-	57.020	56.870	56.845	57.632	58.763	Continuing	Continuing
P329: <i>Advanced Innovative Analysis and Concepts</i>	0.000	48.760	50.030	57.020	-	57.020	56.870	56.845	57.632	58.763	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Strategic Capabilities Office (SCO) conducts analysis in support of ongoing efforts to shape and counter emerging threats, with special emphasis on: innovative and architecture-level concepts, cross-Service and cross-Defense/Intelligence concepts, red-teaming, and on a case-by-case basis, research and development projects to demonstrate concept. SCO identifies, analyzes, and accelerates the development, demonstration, and transition of selected capabilities to shape and counter emerging threats, and to improve U.S. security posture. In a partnership endeavor across the Office of the Secretary of Defense (OSD), Joint Staff, Combatant Commands (CCMDs), the Services, the Intelligence Community (IC), and other U.S. Government agencies, SCO combines capability innovation with concepts of operation and information management to develop novel, high-leverage approaches to address pressing national security challenges. SCO conducts projects on accelerated timelines, at any classification or access level.

The Advanced Innovative Analysis and Concepts Program Element supports development, studies, analysis, and demonstration of integrated concepts and prototypes, analysis in support of ongoing efforts to shape and counter emerging threats, cross-Service and cross-Defense/Intelligence concepts, and red-teaming. Projects focus on proving component and subsystem maturity prior to integration in major systems, and may involve risk reduction initiatives. Due to the nature of these projects, specific applications and detailed plans are available at a higher classification level.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	50.000	59.830	57.654	-	57.654
Current President's Budget	48.760	50.030	57.020	-	57.020
Total Adjustments	-1.240	-9.800	-0.634	-	-0.634
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-9.800			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.221	-			
• Other Internal Baseline Adjustment	-	-	-0.193	-	-0.193
• FY15 Reprog. for Cancelled Account	-0.019	-	-	-	-
• Economic Assumptions	-	-	-0.441	-	-0.441

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Appropriation/Budget Activity
0400: *Research, Development, Test & Evaluation, Defense-Wide I BA 3:
Advanced Technology Development (ATD)*

R-1 Program Element (Number/Name)
PE 0603289D8Z / *Advanced Innovative Analysis and Concepts*

Change Summary Explanation

FY 2017 internal realignment reflects funding for higher Departmental priorities and requirements.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Office of the Secretary Of Defense **Date:** February 2016

Appropriation/Budget Activity 0400 / 3					R-1 Program Element (Number/Name) PE 0603289D8Z / <i>Advanced Innovative Analysis and Concepts</i>				Project (Number/Name) P329 / <i>Advanced Innovative Analysis and Concepts</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
P329: <i>Advanced Innovative Analysis and Concepts</i>	0.000	48.760	50.030	57.020	-	57.020	56.870	56.845	57.632	58.763	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Strategic Capabilities Office (SCO) conducts analysis in support of ongoing efforts to shape and counter emerging threats, with special emphasis on: innovative and architecture-level concepts, cross-Service and cross-Defense/Intelligence concepts, red-teaming, and on a case-by-case basis, research and development projects to demonstrate concept. SCO identifies, analyzes, and accelerates the development, demonstration, and transition of selected capabilities to shape and counter emerging threats, and to improve U.S. security posture. In a partnership endeavor across the Office of the Secretary of Defense (OSD), Joint Staff, Combatant Commands (CCMDs), the Services, the Intelligence Community (IC), and other U.S. Government agencies, SCO combines capability innovation with concepts of operation and information management to develop novel, high-leverage approaches to address pressing national security challenges. SCO conducts projects on accelerated timelines, at any classification or access level.

The Advanced Innovative Analysis and Concepts Program Element supports development, studies, analysis, and demonstration of integrated concepts and prototypes, analysis in support of ongoing efforts to shape and counter emerging threats, cross-Service and cross-Defense/Intelligence concepts, and red-teaming. Projects focus on proving component and subsystem maturity prior to integration in major systems, and may involve risk reduction initiatives. Due to the nature of these projects, specific applications and detailed plans are available at a higher classification level.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016	FY 2017
Title: Low-Cost Payloads	14.284	-	-
Description: The Low-Cost Payloads project leverages existing platforms and payloads to deliver near-term innovative capabilities to Combatant Commanders. SCO repurposes existing systems by developing alternative Concepts of Employment (CONEMP) and Tactics, Techniques, and Procedures (TTP) for their employment by the warfighter. Concepts that provide capability improvements to Combatant Commanders are identified for accelerated prototype demonstration, and worked as joint projects with the Services to speed transition time for rapid fielding. Low-Cost Payloads will leverage low cost, commercial, and often low technology options that do not conform to the typical DoD acquisition business model, but have the potential to disrupt and change warfighting capabilities by avoiding or creating technological surprise. Due to the nature of these projects, specific applications and detailed plans are available at a higher classification level. The Low-Cost Payloads project is transitioning to the Advanced Innovative Technologies Program Element (PE) 0604250D8Z in FY 2016 as part of the Unmanned Aerial Vehicle Payloads project.			
FY 2015 Accomplishments:			
• Conducted proof-of-concept design, manufacturing, and demonstration of prototype systems			

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<ul style="list-style-type: none"> Completed operationally relevant demonstrations of the PERDIX Micro UAV and initial MALD-X payload at Exercise Northern Edge in June of 2015. Performed technical, operational, and red team analysis to compare results of demonstrations to mission analysis predictions. This provides an assessment of capabilities' potential to counter strategic adversaries and improve the U.S. security posture. 				
<p>Title: Command and Control of the Information Environment</p> <p>Description: The Command and Control of the Information Environment (C2IE) project provides Combatant Commands, Services, Agencies, and Department of Defense leadership the ability to detect, monitor, understand, and act in the information environment. The C2IE project leverages commercial and other existing software tools to enable dynamic understanding of the information environment. C2IE will improve the warfighters ability to sense, understand, and visualize the information environment, and collaboratively plan and execute activities that contribute to U.S. Government shaping efforts. Due to the nature of this project, specific applications and detailed plans are available at a higher classification level. The Command and Control of the Information Environment project will transition to the Advanced Innovative Technologies Program Element (PE) 0604250D8Z in FY 2017.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> Completed Command and Control of the Information Environment (C2IE) requirements analysis and Capability Definition Package (CDP) with Joint Staff J6. Developed task coordination framework and collaborative mission management capability. Tested analytic capabilities in support of two DoD exercises and one operation in the U.S Pacific Command Area of Responsibility. Demonstrated collaborative mission management capabilities and provided hands on familiarization to 81 personnel in the U.S. Pacific Command. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> Develop a System Engineering Plan (SEP) and integrate all C2IE component capabilities. Finalize data and network architectures and deploy C2IE software on multiple platforms. Establish a test and evaluation platform & lab for C2IE Provide an integrated set of analytic and visualization tools on an information Common Operational Picture (iCOP) for improved situational awareness. Conduct two capability demonstrations, and three additional familiarization engagements for various Combatant Commanders (CCMDs). 		7.468	10.000	-
<p>Title: Sea Dragon</p> <p>Description: A cost-effective disruptive offensive capability will be demonstrated by integrating an existing weapon system with an existing Navy platform. Project includes analysis, prototyping, and experimentation. Due to the nature of these projects,</p>		4.660	-	-

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
specific applications and detailed plans are available at a higher classification level. The Sea Dragon project is transitioning to the Advanced Innovative Technologies Program Element (PE) 0604250D8Z in FY 2016.				
<p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Commenced Phase 0 Analysis and Planning, which included: - Analyzed risk areas and defined appropriate measures for risk reduction. - Established top level system engineering requirements. - Prepared and developed modeling and simulation in support of preliminary system design and static ground testing. - Established Process Teams for Safety, System Engineering, Testing and Management. - Established an Integrated Master Schedule and Integrated Management Plan. - Improved processing speed to reduce time latency from sensor to shooter for off board targeting of maritime targets. 				
<p>Title: Sea Mob</p> <p>Description: SCO, in partnership with the Office of Naval Research (ONR), is developing a group of Unmanned Surface Vehicles (USVs) capable of cooperative swarming behaviors. This project will demonstrate the ability to generate common situational awareness among USVs and conduct coordinated dynamic planning required for sustaining cooperative behaviors. Sea Mob and ONR are working closely together on USV swarm development activities, building on a series of successively more complex demonstrations planned over the next several years to advance the capabilities and prove utility of swarming USVs for multiple missions. This project is funded within the Advanced Innovative Technologies Program Element 0604250D8Z FY 2016 and FY 2017. Due to the nature of these projects, specific applications and detailed plans are available at a higher classification level. The Sea Mob project is transitioning to the Advanced Innovative Technologies Program Element (PE) 0604250D8Z in FY 2016.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Johns Hopkins University Applied Physics Lab (JHUAPL), NASA Jet Propulsion Lab (JPL), Pennsylvania State University Applied Research Lab (PSUARL) and ONR assessed, selected and developed hardware and software solutions for USV swarm subsystems, including sensors, navigation, communications, and autonomy. - Naval Surface Warfare Center, Carderock Division, Combatant Craft Division (NSWCCD-CCD) acquired, modified and equipped a prototype USV, including all subsystems. - NSWCCD-CCD conducted testing and evaluation of this USV to reduce risk in preparation for planned long range demonstrations in FY 2016 and FY 2017. 		5.499	-	-
<p>Title: Alternative Strike</p> <p>Description: The Alternative Strike demonstration integrates existing weapons, launch platforms, and command and control structures in novel ways to quickly provide the Combatant Commanders with critical multi-mission capabilities. This project will</p>		-	6.000	-

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
<p>demonstrate the feasibility and utility of launching existing/modified weapons from existing launch platforms. This project will retire risks associated with cross platform integration to enable transition of new weapon/system combinations to service partners. The FY2016 effort will perform preliminary weapon/launch platform integration studies. The Alternative Strike project will transition to the Advanced Innovative Technologies Program Element (PE) 0604250D8Z in FY 2017. Due to the nature of these projects, specific applications and detailed plans are available at a higher classification level.</p> <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> • Assess Size, Weight, Area, and Power (SWAP) and environmental factors for new concepts and refine concepts based on assessments • Conduct preliminary design of required platform or weapon modifications • Develop interfaces for weapons/platform integration • Develop and assess concepts of operation for new concepts • Finalize program plans for FY2017–FY2020 development and demonstration 				
<p>Title: Strike-Ex</p> <p>Description: The Strike-Ex project leverages existing strike capabilities and develops alternative Concepts of Employment (CONEMP) and Tactics, Techniques, and Procedures (TTP) to deliver near-term innovative strike capabilities to Combatant Commanders. Due to the nature of this project, specific applications and detailed plans are available at a higher classification level. The Strike-Ex project will transition to the Advanced Innovative Technologies Program Element (PE) 0604250D8Z in FY 2017.</p> <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> • Conduct preliminary design and systems engineering activities in support of system architecture, hardware design and platform integration requirements. • Study Doctrine, Organization, Training, Materiel, Leadership & Education, Personnel, and Facilities (DOTMLPF) implications for Strike-Ex. • Continue modeling and simulation efforts to better inform CONOPS development. • Develop operationally-relevant proof-of-principle demonstrations to anchor modeling and simulation performance results. 		-	4.000	-
<p>Title: Third Eye</p> <p>Description: Third Eye is a data architecture that leverages existing and emerging sensors to provide real-time tracking and targeting for multi-Service strike weapons. The project will enhance tracking against hard targets in denied environments and maintain ability to securely communicate with these sensors in real-time. SCO will integrate Third Eye-participating sensors with existing Service architectures to provide a low-cost, survivable real-time tracking and targeting capability to supplement existing</p>		-	2.500	-

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
sensors. Due to the classified nature of this project, specific applications and detailed plans are available at a higher classification level. The Third Eye project will transition to the Advanced Innovative Technologies Program Element (PE) 0604250D8Z in FY 2017.				
FY 2016 Plans:				
<ul style="list-style-type: none"> • Convert and Test J-Series Messages to Common Message Format on the Integrated Broadcast Service (IBS). • Continue to refine low latency fusion algorithms. • Complete three Upstream Data Fusion (UDF) demonstrations/evaluations of improved timeliness. • Continue to develop updates to Mission Planning for Weapons/Tactical Employment guides for using off board sensors. • Conduct four spirals of Clutch Shot demonstrations. • Conduct site testing of special collection sensor. • Complete architecture engineering analysis. • Transition to the Advanced Innovative Technologies Program Element (PE) 0604250D8Z in FY 2017. 				
Title: Sea Stalker		-	4.000	-
Description: SCO will leverage existing low cost, persistent maritime platforms to offer Combatant Commanders (CCMDs) deterrence options during a crisis. The Sea Stalker project seeks to retire the risk of platform and payload integration to provide an immediate, flexible capability. The project includes modeling, analysis, prototyping, and testing. The intended end-state is a prototype system that retires all risks necessary to allow transition to Navy partners. Due to the nature of the project, specific applications and detailed plans are available at a higher classification level. The Sea Stalker project will transition to the Advanced Innovative Technologies Program Element (PE) 0604250D8Z in FY 2017.				
FY 2016 Plans:				
<ul style="list-style-type: none"> • Develop integrated design for platform/payload concept and perform critical design review. • Conduct proof-of-concept demonstration of maritime platforms in an operationally relevant scenario. • Finalize payload mission analysis. • Perform feasibility tests to quantify the capability to counter strategic threats. 				
Title: High-Fidelity Analysis and Concept Generation		16.849	23.530	57.020
Description: The Strategic Capabilities Office (SCO) conducts analysis to identify and accelerate the development, demonstration, and transition of potentially game-changing capabilities to shape and counter emerging threats and improve U.S. security posture. All innovative concepts developed within SCO must first undergo a phase of thorough analysis before moving forward to become a project. Due to the nature of these projects, specific applications and detailed plans are available at a higher classification level.				

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<p><i>FY 2015 Accomplishments:</i></p> <ul style="list-style-type: none"> • Conducted mission analysis, initial prototyping, and established service partnerships for four separate projects that will transition to the Advanced Innovative Technologies Program Element (PE) 0604250D8Z in FY 2017: Alternative Strike, Strike-Ex, Third Eye, and Sea Stalker. • Conducted Technical and Operational exchange meetings with CCMDs to ensure appropriate emphasis on value added benefit of recommended alternatives. <p><i>FY 2016 Plans:</i></p> <ul style="list-style-type: none"> • Continue to innovate in partnership with Services Program Offices and CCMDs to identify game-changing uses of existing systems and technologies. <p><i>FY 2017 Plans:</i></p> <ul style="list-style-type: none"> • Continue to innovate in partnership with Services Program Offices and CCMDs to identify game-changing uses of existing systems and technologies. 			
Accomplishments/Planned Programs Subtotals	48.760	50.030	57.020

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Performance metrics are specific to each Advanced Innovative Analysis and Concepts effort and include measures identified in the management approach, Statement of Work (SOW), and Period of Performance (POP). In addition, completions and successes are monitored against schedules and deliverables stated in the initiative's management approach. Due to the nature of these projects, specific applications and detailed plans are available at a higher classification level